

WHAT IS CLAIMED IS:

1. A method of transmitting a data segment in a data stream using a write module of the type which implements a selected one of a plurality of versions of a streaming protocol, the method comprising the steps of:

(a) outputting a first stream of data according to a first version of the streaming protocol; and

(b) sequentially appending additional streams of data to the first stream of data according to each subsequent version of the streaming protocol up to and including the selected version, if the selected version of the streaming protocol is not the first version of the streaming protocol.

2. The method of claim 1, further comprising the step of receiving the data segment from a data stream using a read module of the type which implements a second selected one of the plurality of versions of the streaming protocol, the receiving step including the steps of:

receiving the first stream of data;

if the second selected version is earlier than the first selected version, receiving each additional stream of data according to each subsequent version of the streaming protocol up to and including the second selected version, and disregarding any remaining data in the data segment;

if the second selected version is equal to or later
than the first selected version, sequentially receiving the
additional streams of data according to each subsequent
version of the streaming protocol up to and including the
5 second selected version; and

testing, prior to receiving each additional stream of
data, whether an end of the data segment has been detected,
and if so, terminating reception of the data segment prior
to receiving the additional stream of data according to the
10 second selected version.

3. The method of claim 2, wherein the data segment is
an object.

15 4. The method of claim 3, wherein the data segment
includes all of the data necessary to reconstruct the
object; wherein the data stream is serial.

5. The method of claim 3, wherein the testing step
20 includes the step of initializing object data that is not
received from the data stream to a default value.

6. The method of claim 3, further comprising the
steps of:

25 transmitting an object type for the data segment; and

receiving the object type, including the steps of allocating and initializing an object when receiving the data segment based upon the object type.

5 7. The method of claim 2, wherein the read and write modules are resident on the same computer.

8. The method of claim 2, wherein the read and write modules are resident on separate computers.

10 9. The method of claim 1, further comprising the step of delimiting the data segment in the data stream using begin and end tags.

15 10. The method of claim 9, wherein no additional tags are embedded in the data segment between the begin and end tags.

11. The method of claim 1, further comprising the
20 steps of:

 determining whether the data segment is stored in a current context for the data stream;

 if so, transmitting an alias tag in lieu of the data segment; and

if not, storing the data segment in the current context.

12. The method of claim 1, wherein the data stream is
5 a non-random access data stream.

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13. A method of receiving a data segment from a data stream using a read module of the type which implements a selected one of a plurality of versions of a streaming
10 protocol, the method comprising the steps of:
(a) receiving a first stream of data according to a first version of the streaming protocol;
(b) if the selected version of the streaming protocol is not the first version of the streaming protocol,
15 sequentially receiving additional streams of data according to each subsequent version of the streaming protocol up to and including the selected version; and
(c) testing, prior to receiving each additional stream of data, whether an end of the data segment has been
20 detected, and if so, terminating reception of the data segment prior to receiving the additional stream of data according to the selected version.

14. The method of claim 13, further comprising the
25 step of disregarding any remaining data in the data segment,

if the end of the data segment has not been detected upon receiving the additional stream of data according to the selected version.

5 15. The method of claim 14, further comprising the step of storing the data segment in a current context, including any disregarded data therefrom.

10 16. The method of claim 13, wherein the data segment is an object.

15 17. The method of claim 16, wherein the testing step includes the step of initializing object data that is not received from the data stream to a default value.

18. The method of claim 16, further comprising the steps of:

receiving an object type for the data segment; and

20 allocating and initializing an object based upon the object type to build the object from the streams of data in the data segment.

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20-23 → ~~19. A computer system that transmits data segment in a data stream, the computer system comprising a write module~~
25 that implements a selected one of a plurality of versions of

a streaming protocol, and that outputs the data segment in the data stream, wherein the write module comprises:

(a) means for outputting a first stream of data according to a first version of the streaming protocol; and

5 (b) means for sequentially appending additional streams of data to the first stream of data according to each subsequent version of the streaming protocol up to and including the selected version, if the selected version of the streaming protocol is not the first version of the
10 streaming protocol.

20. The computer system of claim 19, wherein the data segment is an object.

15 21. The computer system of claim 19, wherein the write module further comprises means for transmitting an object type for the data segment.

20 22. The computer system of claim 19, wherein the write module further comprises means for transmitting begin and end tags to delimit the data segment in the data stream.

23. The computer system of claim 19, wherein the write module further comprises means for transmitting an alias tag

in lieu of the data segment if the data segment is stored in a current context for the data stream.

24. A computer system that receives a data segment from a data stream, the computer system comprising a read module that implements a selected one of a plurality of versions of a streaming protocol, and that receives the data segment from the data stream, wherein the read module comprises:

(a) means for receiving a first stream of data according to a first version of the streaming protocol;

(b) means for sequentially receiving additional streams of data according to each subsequent version of the streaming protocol up to and including the selected version, if the selected version of the streaming protocol is not the first version of the streaming protocol; and

(c) means for testing whether an end of the data segment has been detected, and if so, for terminating reception of the data segment prior to receiving the additional stream of data according to the selected version prior to receiving each additional stream of data.

25. The computer system of claim 24, wherein the read module comprises means for disregarding any remaining data in the data segment, if the end of the data segment has not

been detected upon receiving the additional stream of data according to the selected version.

26. The computer system of claim 24, wherein the data
5 segment is an object.

27. The computer system of claim 26, wherein the read
module comprises means for receiving an object type for the
data segment, and for allocating and initializing an object
10 based upon the object type to build the object from the
streams of data in the data segment.

28. A computer system comprising first and second
computers that transmit a data segment in a data stream from
15 the first computer to the second computer, the first
computer comprising means for implementing a first selected
one of a plurality of versions of a streaming protocol, and
the second computer comprising means for implementing a
second selected one of the plurality of versions of the
20 streaming protocol, wherein:

(a) the first computer includes a write module for
transmitting the data segment, wherein the write module
outputs a first stream of data according to a first version
of the streaming protocol, and if the first selected version
25 is not the first version of the streaming protocol, the

write module sequentially appends to the first stream of data additional streams of data according to each subsequent version of the streaming protocol up to and including the first selected version; and

5 (b) the second computer includes a read module for receiving the data segment from the first computer, wherein the read module receives the first stream of data, wherein if the second selected version is earlier than the first selected version, the read module receives each additional stream of data according to each subsequent version of the
10 streaming protocol up to and including the second selected version, and disregards any remaining data in the data segment, wherein if the second selected version is equal to or later than the first selected version, the read module
15 sequentially receives the additional streams of data according to each subsequent version of the streaming protocol up to and including the second selected version, and wherein, prior to receiving each additional stream of data, the read module detects whether an end of the data
20 segment has been detected, and if so, terminates reception of the data segment prior to receiving the additional stream of data according to the second selected version.

25 29. A program storage device, readable by a computer system and tangibly embodying one or more programs of

instructions executable by the computer system to perform method steps of transmitting a data segment in a data stream in a format based upon a selected one of a plurality of versions of a streaming protocol, the method comprising the

5 steps of:

(a) outputting a first stream of data according to a first version of the streaming protocol; and

(b) sequentially appending additional streams of data to the first stream of data according to each subsequent

10 version of the streaming protocol up to and including the selected version, if the selected version of the streaming protocol is not the first version of the streaming protocol.

30. A program storage device, readable by a computer

15 system and tangibly embodying one or more programs of instructions executable by the computer system to perform method steps of receiving a data segment from a data stream according to a selected one of a plurality of versions of a streaming protocol, the method comprising the steps of:

20 (a) receiving a first stream of data according to a first version of the streaming protocol;

(b) sequentially receiving additional streams of data according to each subsequent version of the streaming protocol up to and including the selected version, if the

selected version of the streaming protocol is not the first version of the streaming protocol; and

(c) testing, prior to receiving each additional stream of data, whether an end of the data segment has been
5 detected, and if so, terminating reception of the data segment prior to receiving the additional stream of data according to the selected version.

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